

**NAD**

# **SERVICE MANUAL**

**IMPORTANT NOTICE:**

THIS MANUAL SUPPLEMENTS THE NAD 2200  
SERVICE MANUAL AND SHOULD BE USED FOR UNITS  
WITH SERIAL NOS. 6010010 ONWARD.

**2200PE**  
**POWER AMPLIFIER**

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## SPECIFICATIONS

### FEATURES

A. Control and Switch	
1. AC Power switch	: On-off . . . . . Push Type
2. Bridging switch	: Normal-Bridging . . . Slide Type with Locking plate
3. Soft Clipping	: On-off . . . . . Slide Type
B. 1. Speaker terminal (L/R)	: 4P army type binding post for banana plug
2. AC Line Cord	: UL-1 type/A-Version U.S.A. : BS type (without plug)/B-Version U.K. : CEE2 type/C-Version Europe : S type/B <sub>1</sub> -Version Australia
3. Main Input (L/R)	: RCA Type Pin Jack (2p)
4. Lab Input (L/R)	: RCA Type Pin Jack (2p)

C. Chassis and Circuit	
1. Display	Power (Green), Soft clipping (Yellow), Overload (Red), Protection (Red)
D. Output Load	Speaker Output : 8 ohm/4 ohm
E. Maximum Power Consumption	: 770W
F. AC Power Supply	: 120V 60Hz/A-Version U.S.A. : 240V 50Hz/B-Version U.K. : 220V 50Hz/C-Version Europe : 240V 50Hz/B <sub>1</sub> -Version Australia
G. Netweight and Dimension (Approx.)	
1. Netweight	: 12.5 Kg
2. Dimensions	: W=420 H=129 D=385 (mm)

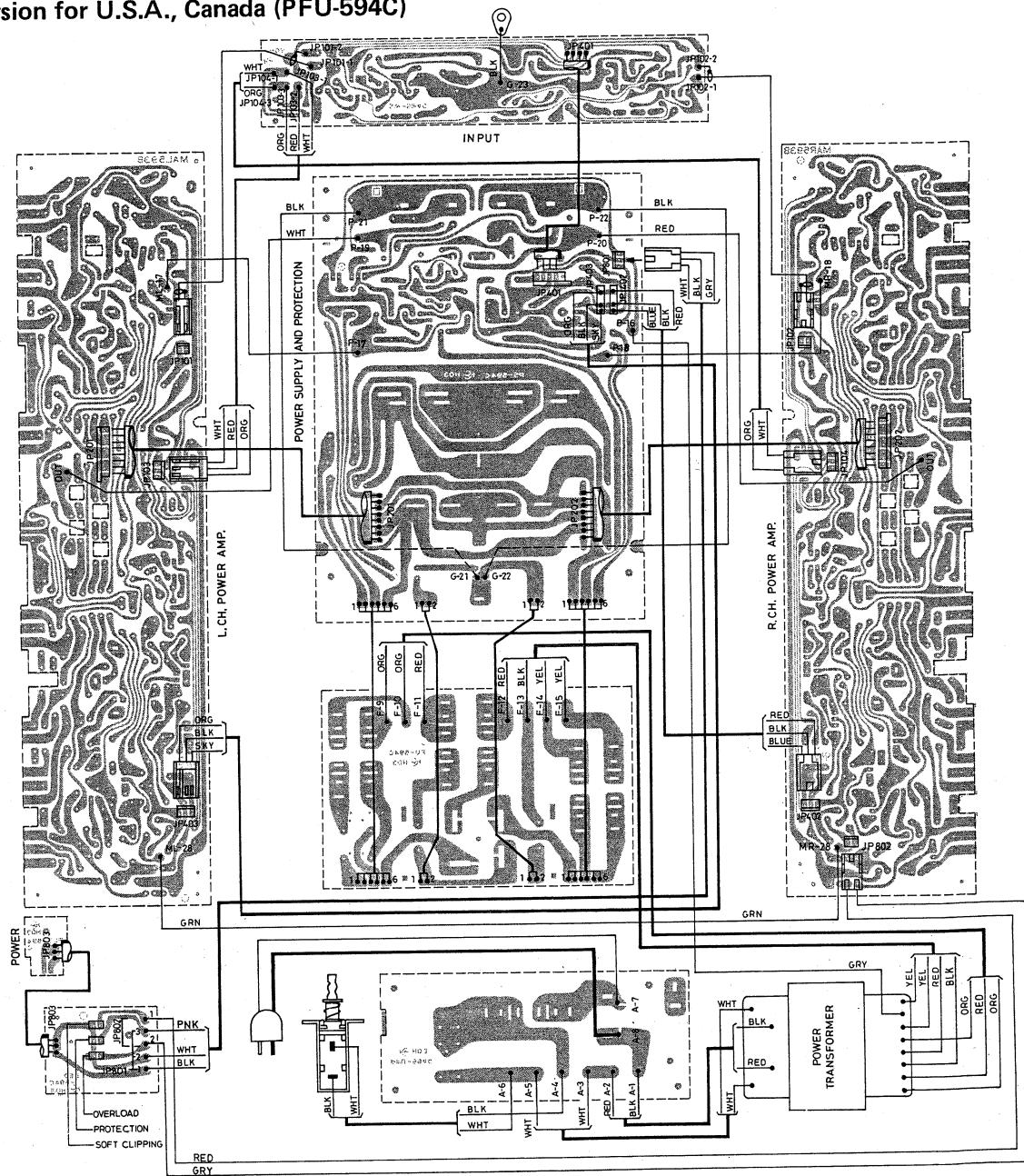
### ELECTRICAL SPECIFICATION

	Nominal	Limit	Unit	Nominal	Limit	Unit
1. Sensitivity	0.775	$\pm 1.5\text{dB}$	(V)	9. Damping factor at 50Hz, 8 ohm Load	120	100
Input : 1000Hz				10. Slew Rate	25	23 (V/u.Sec.)
Output : 100W				11. Signal to noise ratio		
2. Channel difference		less than 1	(dB)	Input shorted	110	105 (dB)
3. Output power				Normal input		
Input : Main in				Ref. Rated power		
Output : 0.04% THD				IHF-A weighted		
20-20000Hz continuous both				12. Residual noise	unweighted	0.3 (mV)
CH. Driven					weighted	0.1
4. Clipping Power				13. Input impedance		More than 20 (Kohm)
Input : Main in	8 ohm load	140	125	14. Crosstalk		
Output : 1% THD				Between the channels of stereo equipment		
1 KHz continous	4 ohm load	200	180	Input : Normal (shorted)		
Both CH. Driven				8 ohm load		
5. Dynamic Power				1000 Hz	80	76 (dB)
Input : Main in	8 ohm	400	350	20000Hz	63	56 (dB)
Output : Clipping point	4 ohm	500	440	15. Soft clip level (100W)		
1 KHz 20ms IHF dynamic wave				(When switched in just at onset of clipping)		
Both CH. Driven				4 ohm	-0.5	-0.5±0.4 (dB)
6. IM Distortion				8 ohm	-0.5	-0.5±0.4 (dB)
Input : Main in 60Hz:				16. Peak short term (1 msec)	50	45 (A)
7000Hz=4:1				O/P current		
Output : From 250mW-100W						
Both CH.Driven	8 ohm load					
7. THD						
Input : Main in						
Output : 20-20000Hz, from 250mW-100W						
Both CH. Driven	8 ohm load					
8. Frequency response						
Input : LAB in		$\pm 0.5\text{dB}$				
Output : 10W						
20-20000Hz						
Input : Nor in at 14 Hz	-3	$-3\pm 1.5$	(dB)			
Output : 10W at 45KHz	-3	$-3\pm 1.5$	(dB)			
600 Ohm/Ch drive, Both 12dB/ Octave						

\* Unless otherwise specified procedure shall be made in accordance with IHF-A202.

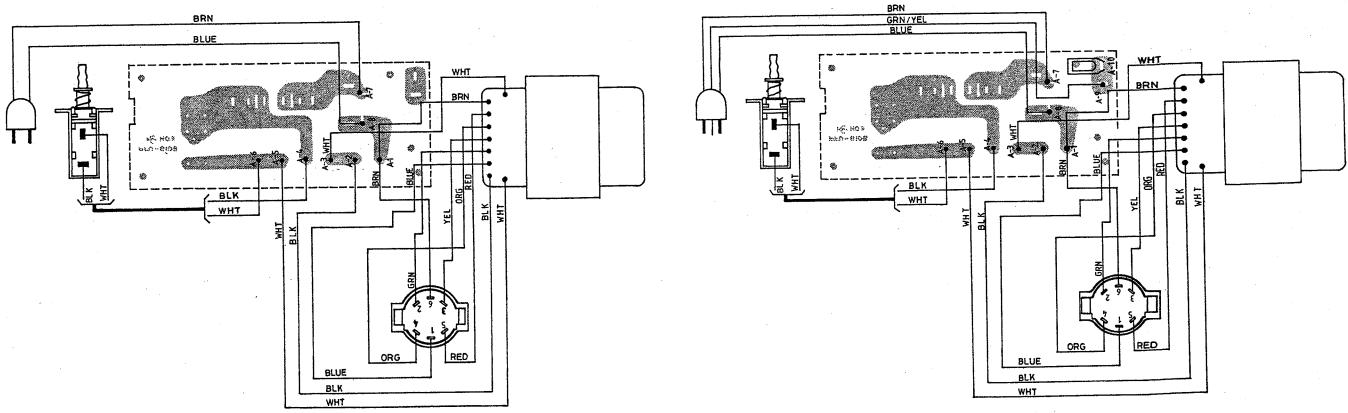
## WIRING DIAGRAM (Component side)

A, A<sub>1</sub>-Version for U.S.A., Canada (PFU-594C)



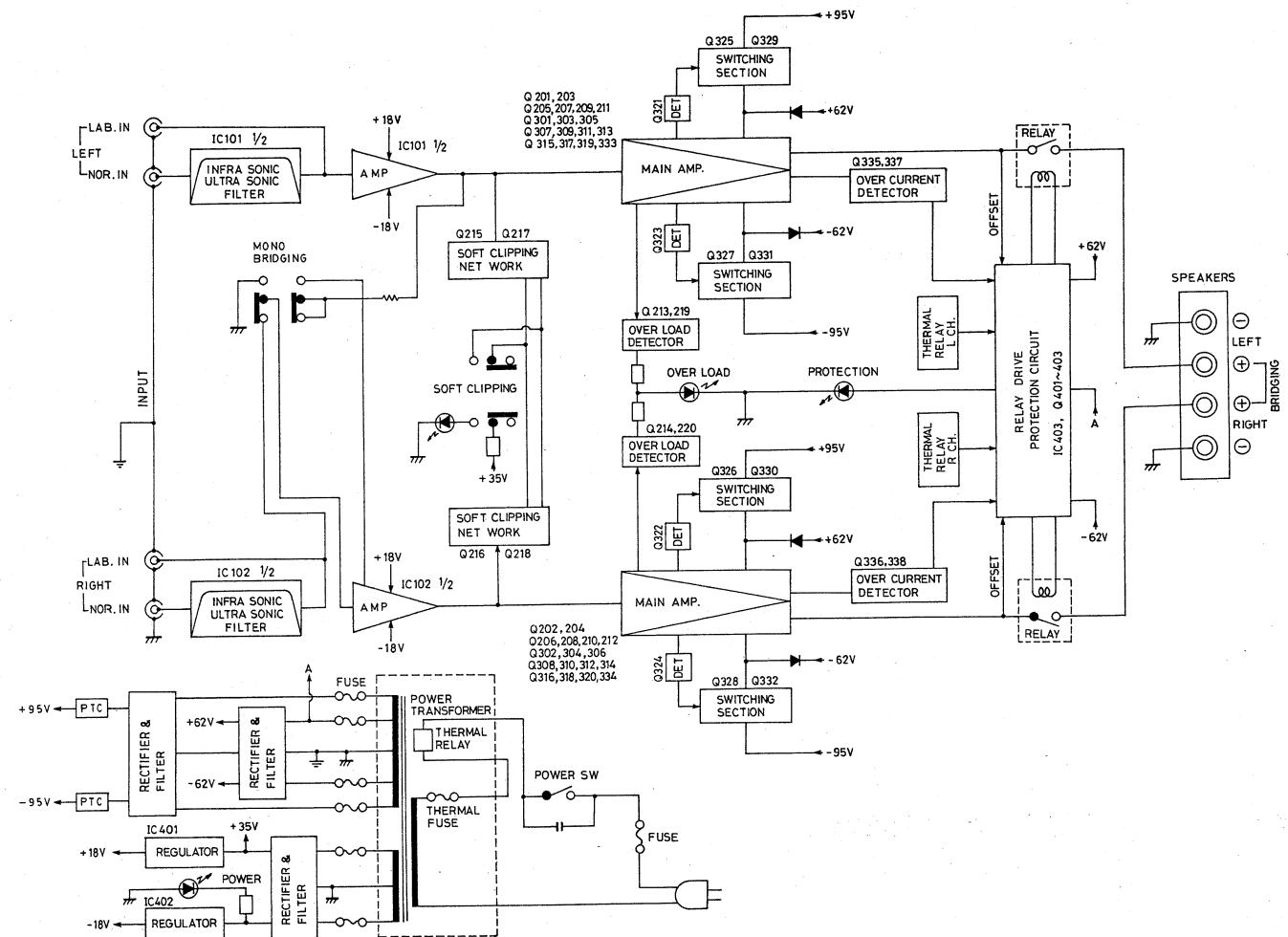
B, C, C<sub>1</sub>, -Version for U.K., Scandinavia, W.Germany  
(PFU-610B)

B<sub>1</sub>-Version for Australia/N.Z. (PFU-610B)



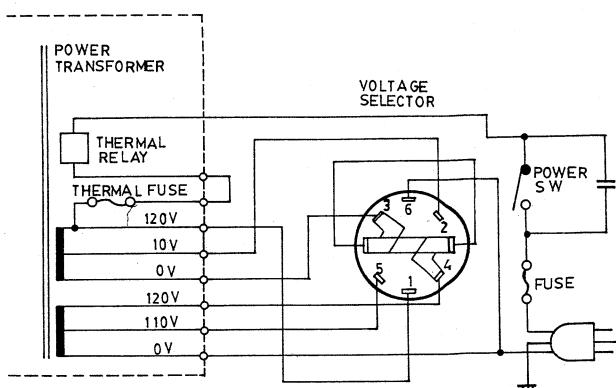
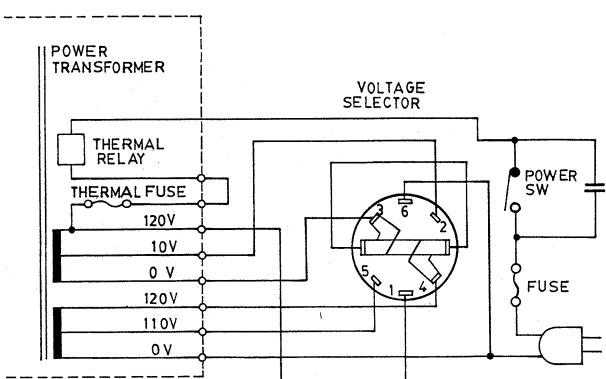
## BLOCK DIAGRAM

A, A<sub>1</sub>-Version for U.S.A., Canada (PFU-594C)



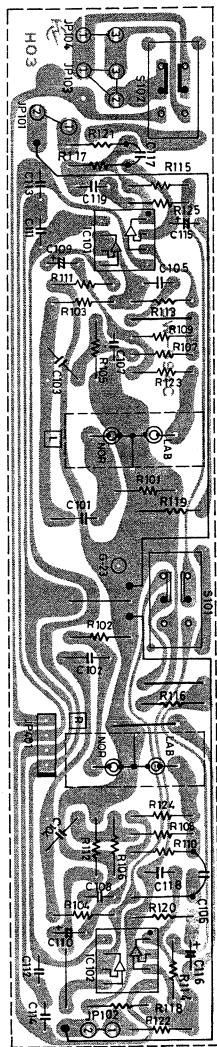
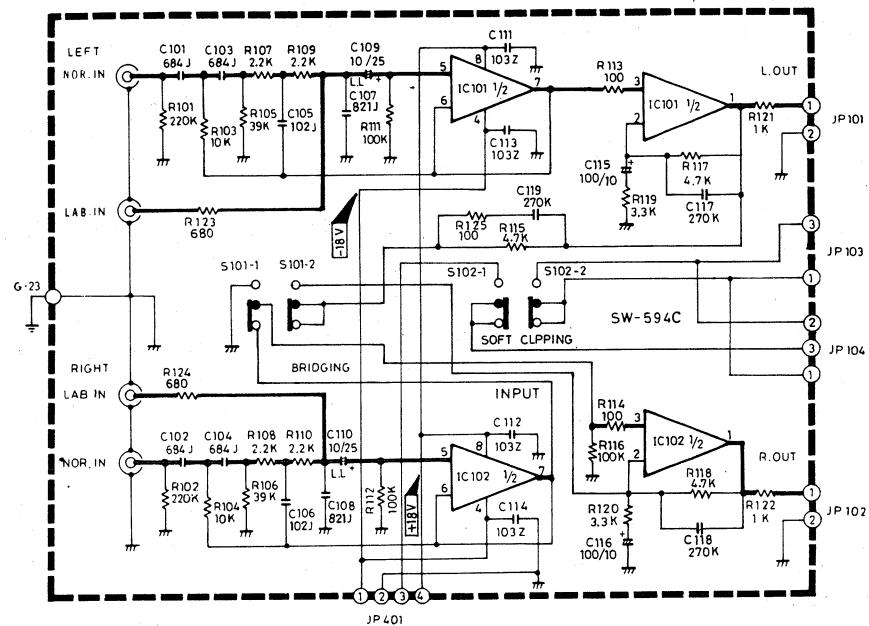
B, C, C<sub>1</sub>-Version for U.K., Scandinavia, W.Germany  
(PFU-610B)

B<sub>1</sub>-Version for Australia/N.Z. (PFU-610B)

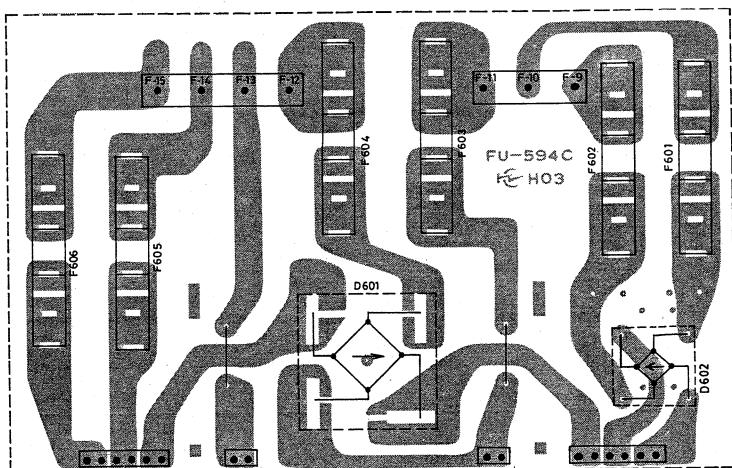
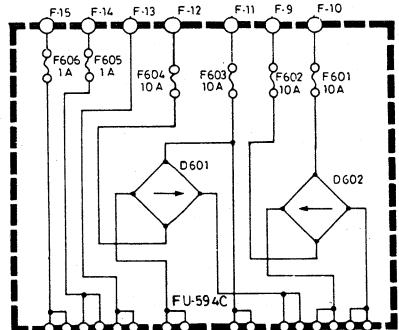


## SCHEMATIC AND PCB LAYOUT (Foil side)

### Input Circuit (SW-594C or SW-610B)

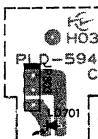
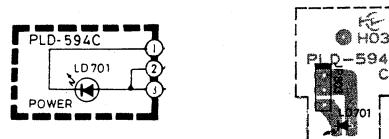
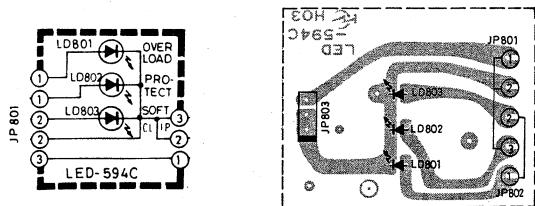


### Fuse Circuit (FU-594C or FU-610B)



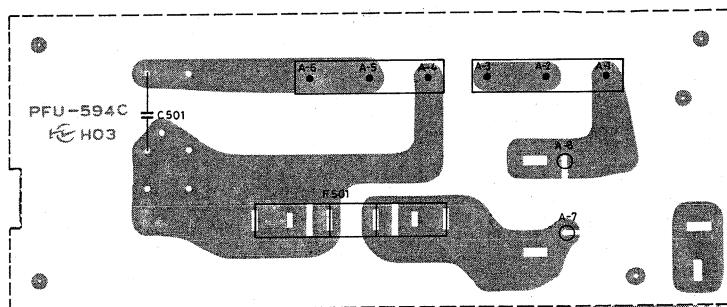
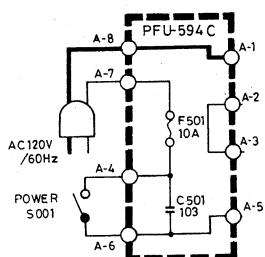
**Indicators Circuit (LED-594C or LED-610B)**

**Power Indicator Circuit PLD-594C or PLD-610B)**

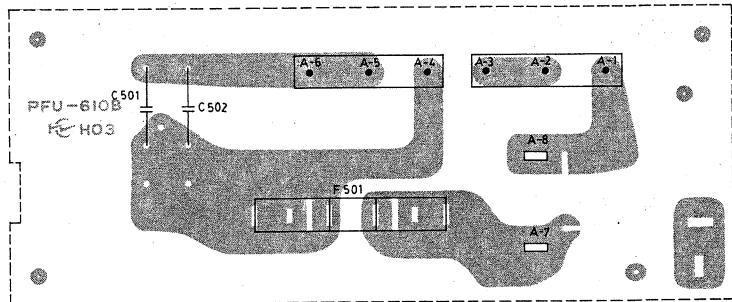
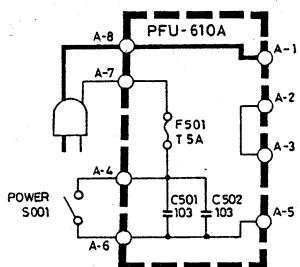


**Primary Fuse Circuit**

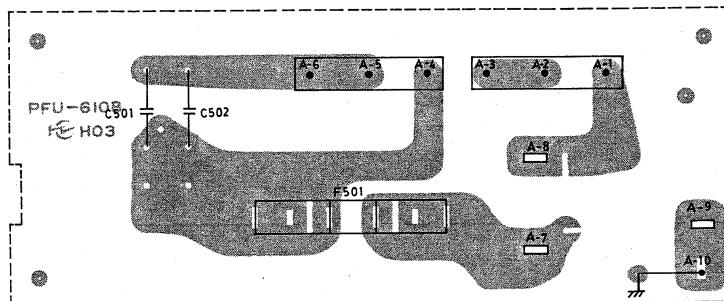
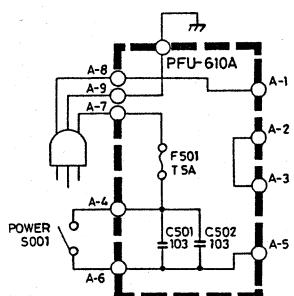
**A, A<sub>1</sub>-Version for U.S.A., Canada (PFU-594C)**



**B, C, C<sub>1</sub>, -Version for U.K., Scandinavia, W.Germany (PFU-610B)**

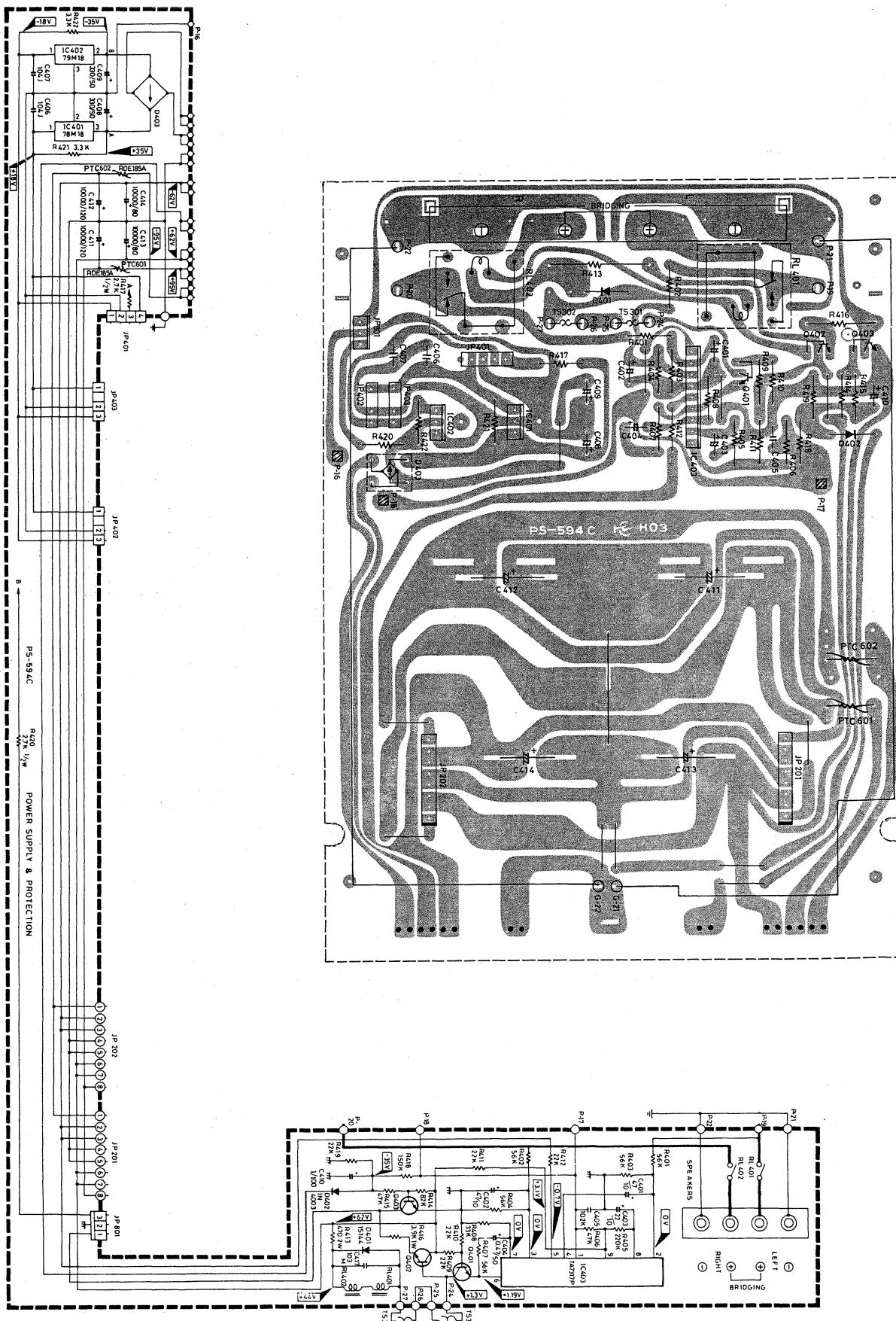


**B<sub>1</sub>-Version for Australia/N.Z. PFU-610B)**

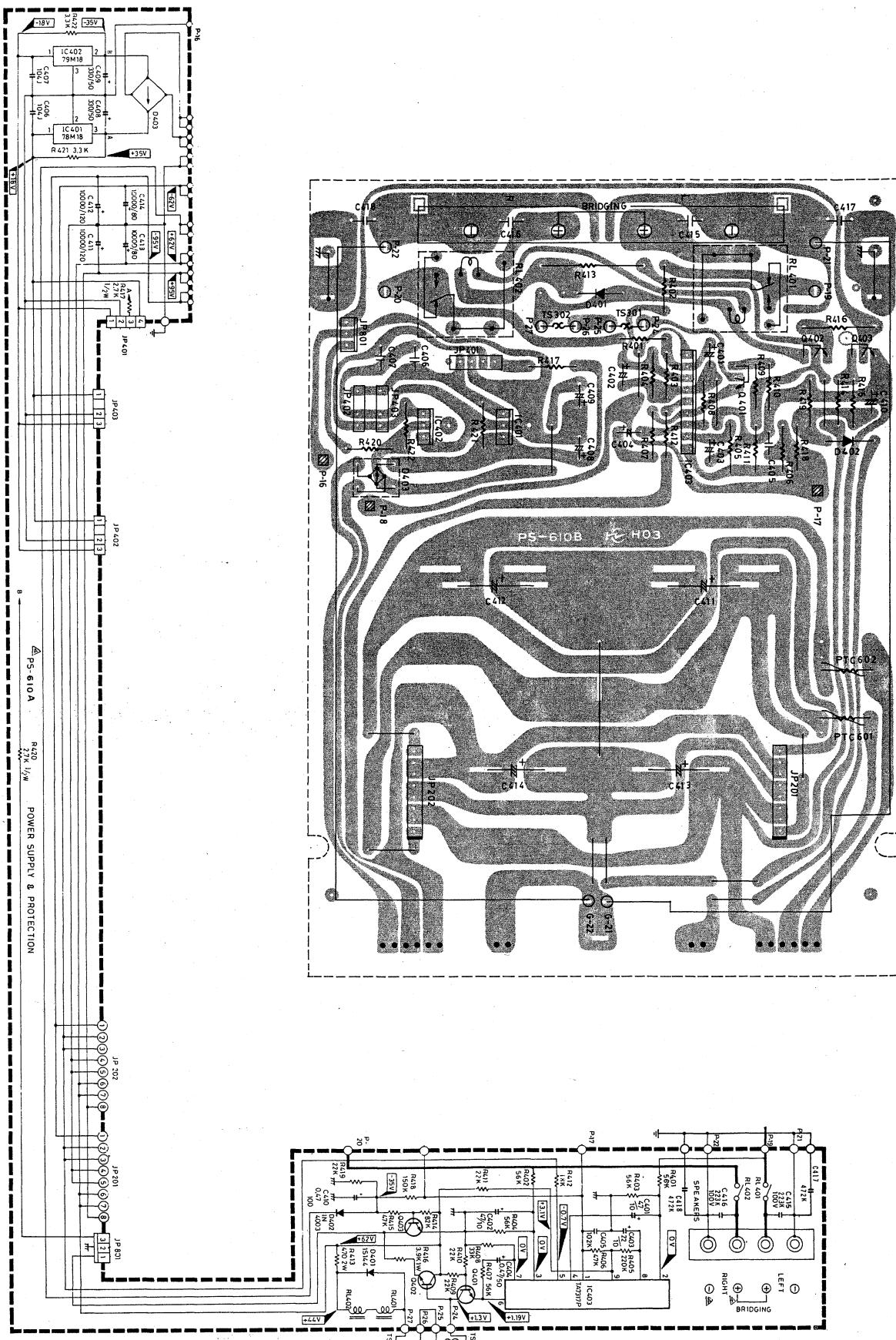


## Power Supply Protection Circuit

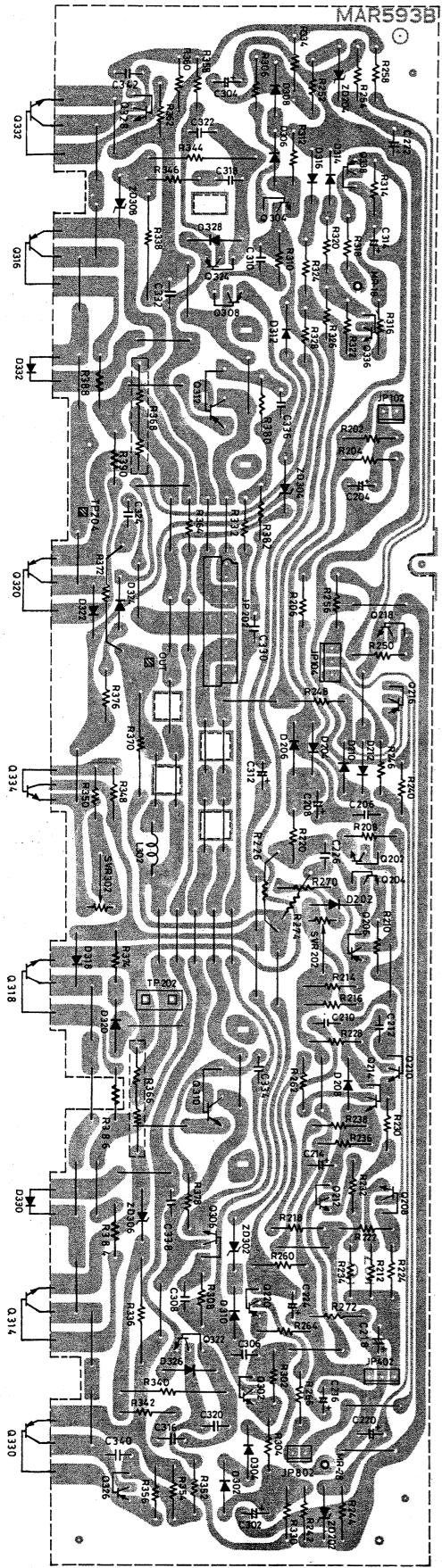
A, A<sub>1</sub>, B, B<sub>1</sub>, C-Version for U.S.A., Canada, U.K., Australia/N.Z., Scandinavia | (PS-594C or PS-610B)



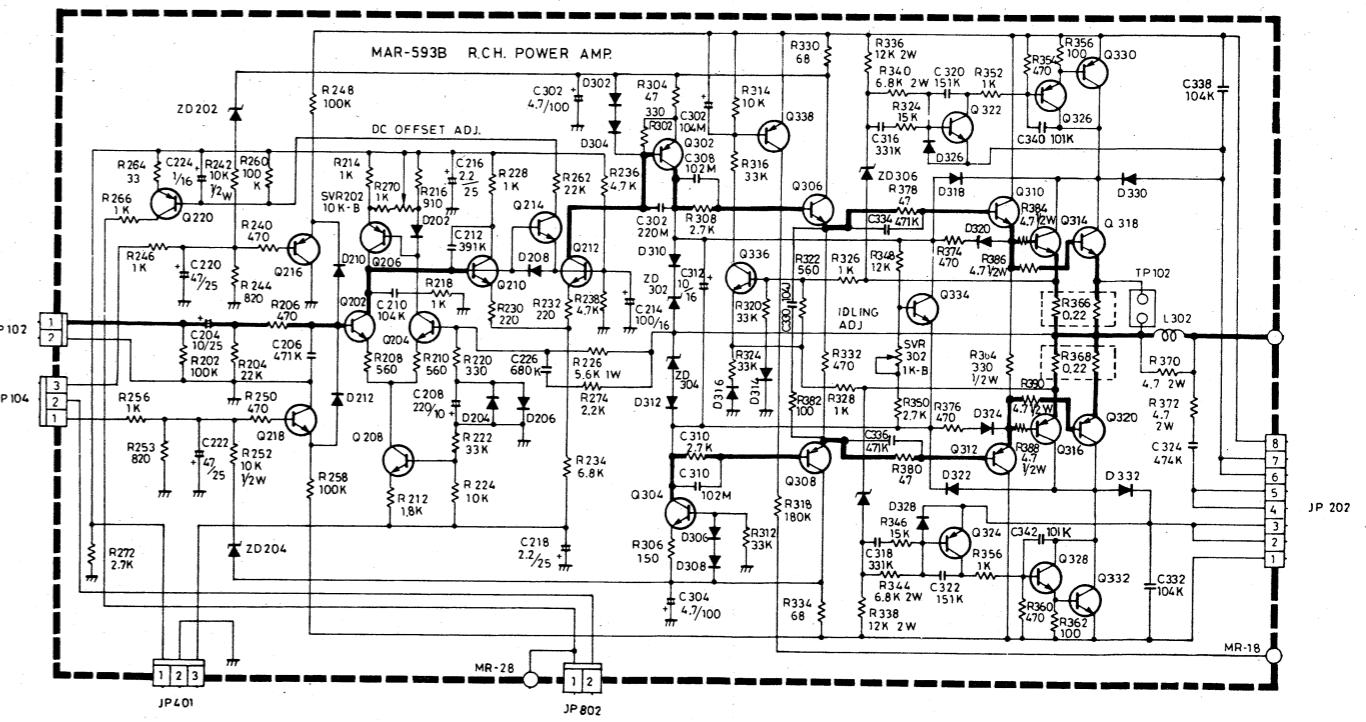
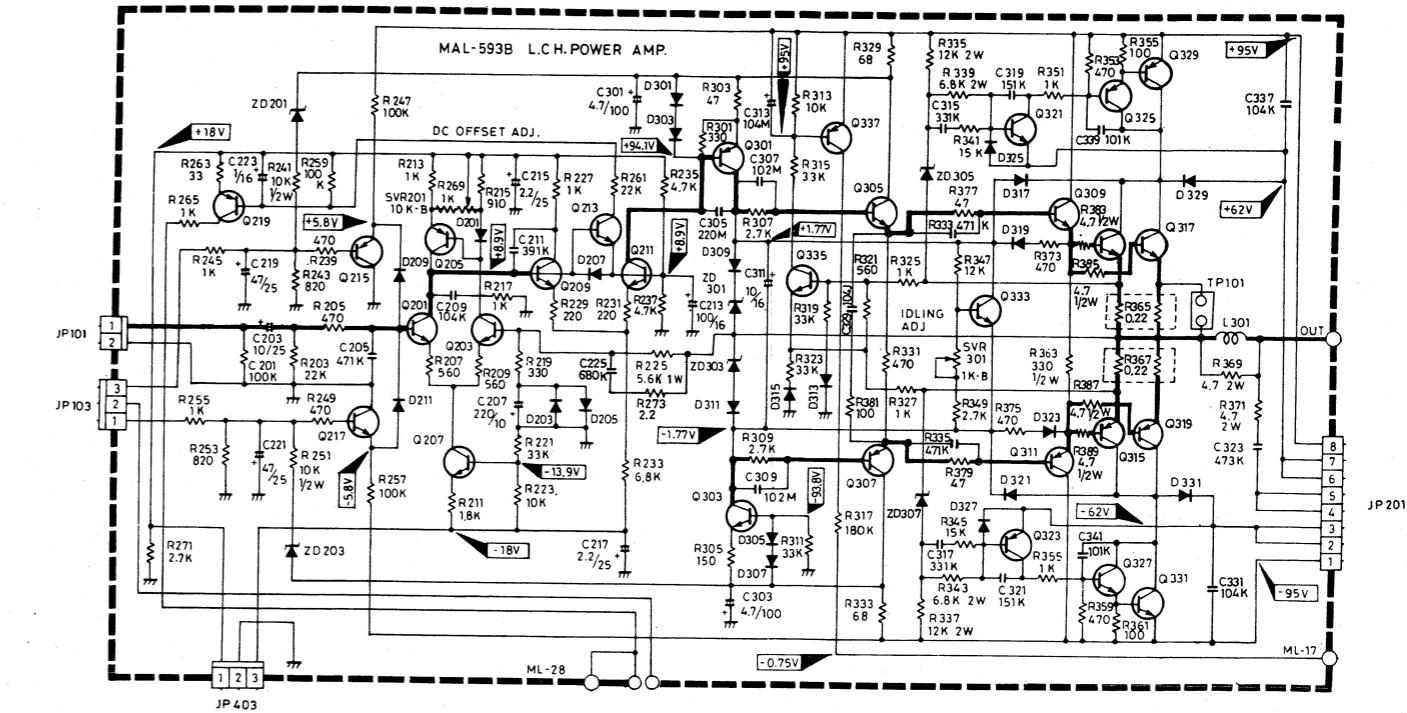
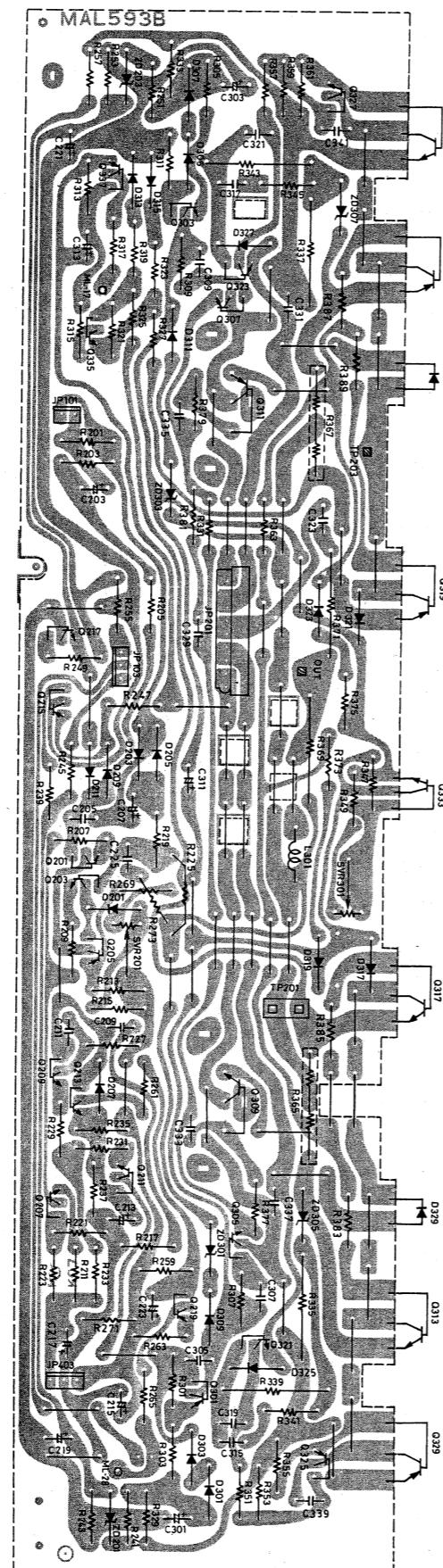
## **C<sub>1</sub> -Version for W.Germany | (PS-610B)**



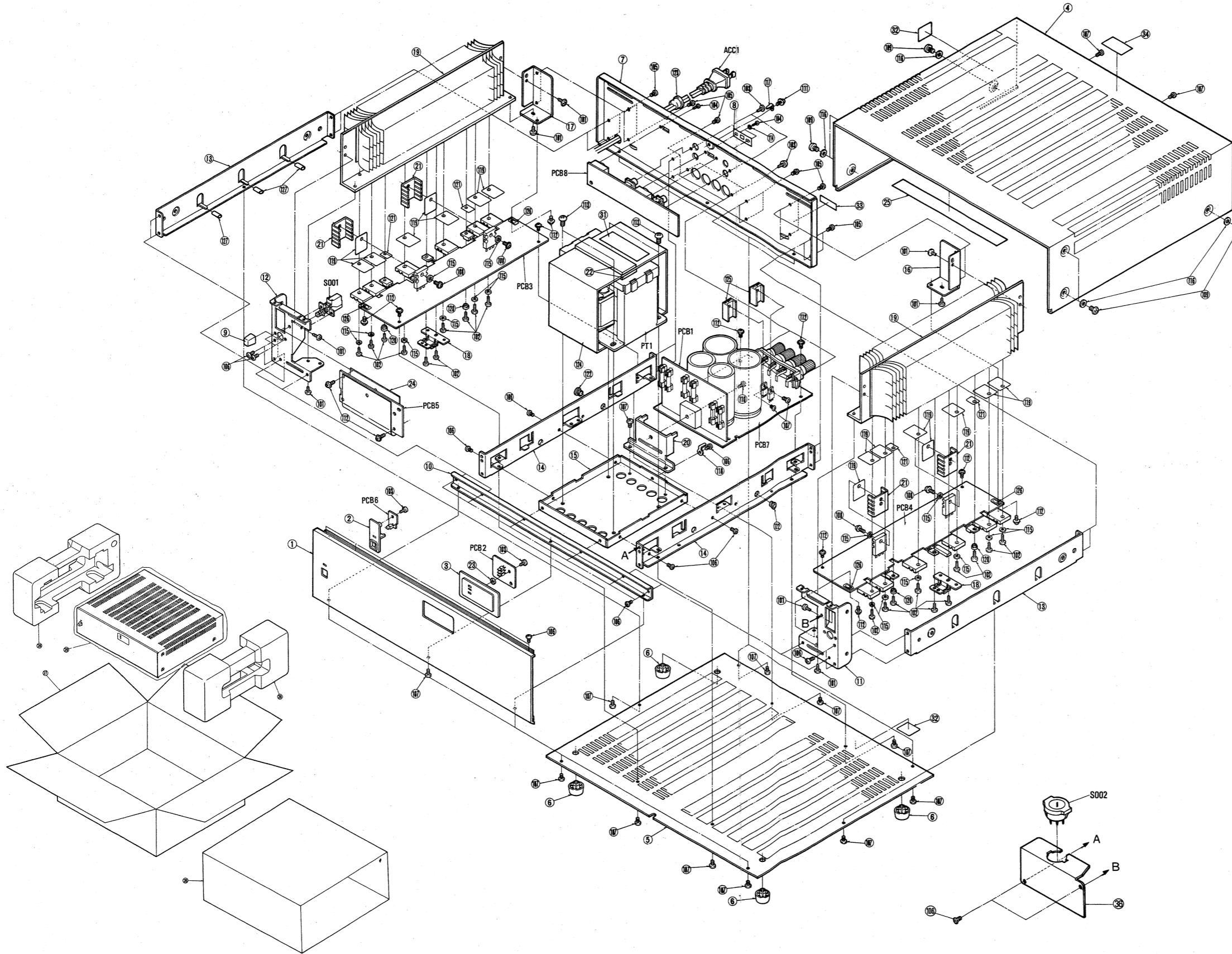
## R ch Power Amp Circuit (MAR-593B)



## L ch Power Amp Circuit (MAL-593B)

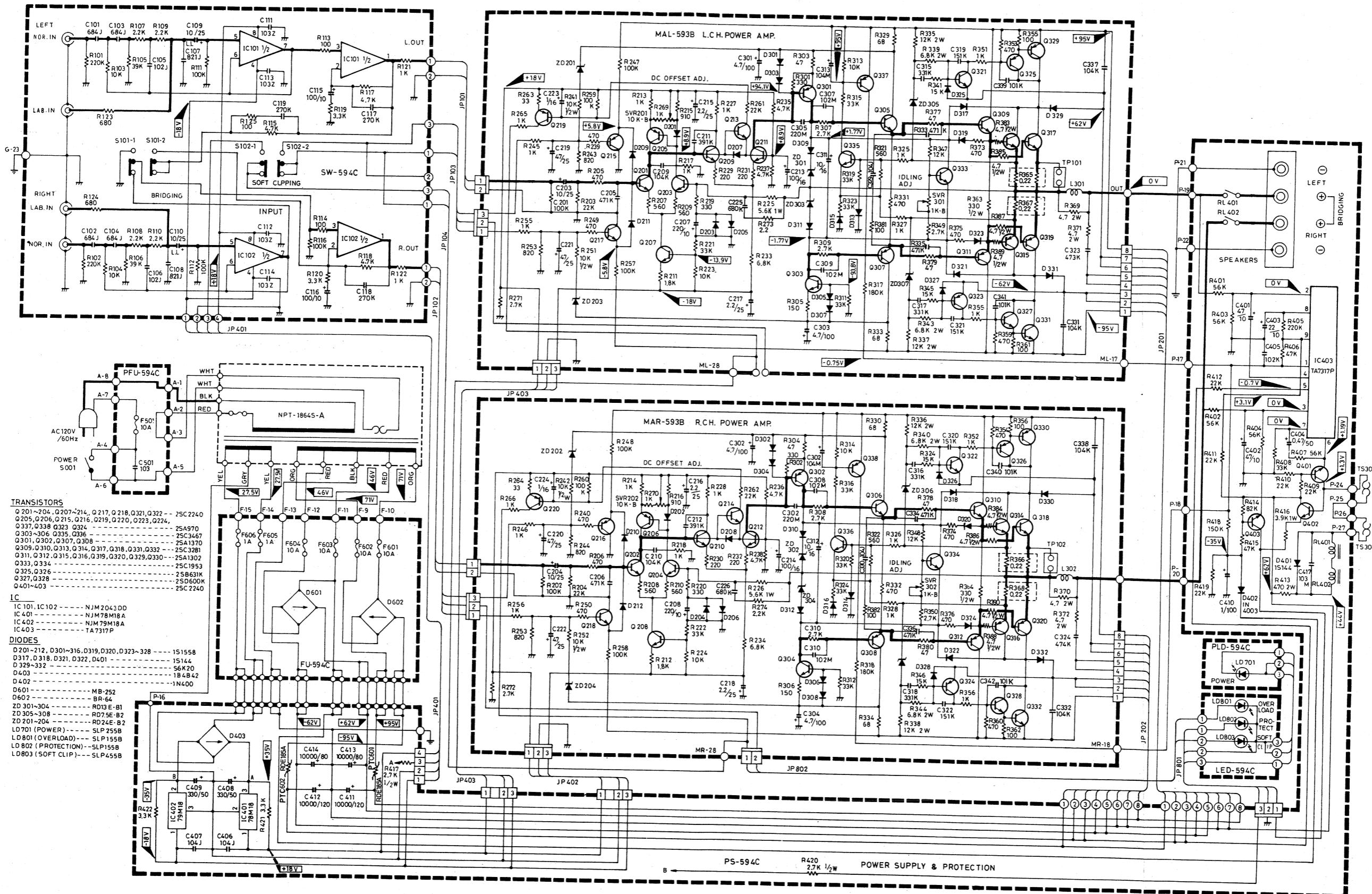


## EXPLODED VIEW AND PARTS LIST



Ref. No.	Parts No.	Description
1	N21235-1	Front Panel
2	N30815	Button Guide
3	62-3470-1-0	Indicator Panel
4	N21237	Cabinet
5	N21239	Bottom Board
6	2299-1	Foot
7	N21238-1A	Rear Panel [A]
7	N21238-3A	Rear Panel [B, B <sub>1</sub> ]
7	N21238-2B	Rear Panel [C]
8	N44236	Lock Plate
9	62-1105-1-0	Push Button
10	N30813	Front Sub Chassis
11	N44230	Front Sub Chassis R
12	N44231	Front Sub Chassis L
13	N30814	Side Chassis
14	N30812	Center Chassis
15	N30811	Support Chassis (P.T.)
16	N44232	Fittings R (Heat Sink)
17	N44233	Fittings L (Heat Sink)
18	N44235	Fittings (Thermal Relay)
19	N21240	Heat Sink
20	N44234	Heat Sink
21	SH-1230-1	Heat Sink (P.T.)
22	N44360	Cushion (P.T.)
23	N41946A	Washer
24	N44336	Shield Cover
25	N44295	Cabinet Mat
26	N30841	Shipments Sleeve
27	N21287	Shipments Carton
28	N21242	Packing Pad
29	N41318	Polyethylene Bag (Unit)
30	N40487	Polyethylene Bag (Accessories)
31	N41939	Label, Fuse [A]
32	N44043	Label, SA1965 (Lighting Flash) [A]
33	SL.1024	Label, Serial No.
34	N44339	Label, SP Caution
35	OM-554	Instruction Manual
36	N44441	Metal Fittings (Voltage Sele.) [B, B <sub>1</sub> , C]
101	TBB+30X08-Y	Tap Screw B, Bind Head, Y
102	TBB+30X12-Y	Tap Screw B, Bind Head, Y
103	TPM+30X08-B	Tap Screw P, Round Head, B
104	TSB+26X05-B	Tap Screw S, Bind Head, B
105	TSB+30X06-B	Tap Screw S, Bind Head, B
106	TSB+30X06-Y	Tap Screw S, Bind Head, Y
107	TSB+30X08-B	Tap Screw S, Bind Head, B
108	TSB+30X10-Y	Tap Screw S, Bind Head, Y
109	TSB+40X08-B	Tap Screw S, Bind Head, B
110	TSB+40X16-Y	Tap Screw S, Bind Head, Y
111	TSC+30X06-N	Tap Screw S, Washer Faced, N
112	TSC+30X08-Y	Tap Screw S, Washer Faced, Y
113	TST+40X08-Y	Tap Screw S, Truss, Y
114	2AWX0826-05-B	Plain Washer, B
115	2AWX0830-05-Y	Plain Washer, Y
116	2AWX1040-05-B	Plain Washer, B
117	2AE-03	Lug
118	2AE-05	Lug
119	AC-261	Mica
120	B-10	Bushing
121	M-10	Mica
122	NO.5219	Bush
123	SR-4N-4	Cord Stopper [A]
123	SR-5N-4	Cord Stopper [B, B <sub>1</sub> , C]
124	4B48503T	Shield Case
125	5E-25-BSB	Heat Sink
126	59BS1692	Gnd Lug
127	U9-#09802	UL Type Tube
ACC1	ACC-035C5-9EK1	Line Cord [A]
ACC1	ACC-037D3-9EK1	Line Cord [B, C]
ACC1	ACC-038D3-9EK1	Line Cord [B <sub>1</sub> ]
PCB1	32A1P02A-1	P.C. Board Ass'y (FU-594)
PCB2	32A1P02A-2	P.C. Board Ass'y (LED-594)
PCB3	32A1P01A	P.C. Board Ass'y (MAL-593)
PCB4	32A1P01A-1	P.C. Board Ass'y (MAR-593)
PCB5	32A1P02A-3	P.C. Board Ass'y (PFU-594)
PCB6	32A1P02A-4	P.C. Board Ass'y (PLD-594)
PCB7	32A1P02A	P.C. Board Ass'y (PS-594)
PCB8	32A1P02A-5	P.C. Board Ass'y (SW-594)
PT1	NPT-1864S	Power Transformer [A]
PT1	NPT-1862S	Power Transformer [B, B <sub>1</sub> , C]
S001	ESB-99713V	Voltage Selector [B, B <sub>1</sub> , C]
S002	YKS11-0010	Voltage Selector [B, B <sub>1</sub> , C]

## **SCHEMATIC DIAGRAM**



**CAUTION: THOSE FUSES WITH SYMBOL MARKS**  **and**   
**ARE FAST-BLOW TYPE. REPLACE WITH SAME TYPE 10A 250V (OR 1A 250V) FUSE.**

ATTENTION: LES FUSIBLES MARQUES - **250V** ET **250V** SONT DE TYPE A

FUSION RAPIDE. UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE.

FUSION RAPIDE. UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE DE 10A 250V(OU 1A 250V)

DRAWING NO.	MODEL NO.
CD-554	2200A

## ELECTRICAL PARTS LIST

### Capacitors

Ref. No.	Part No.	Description
C101~104	ECQV1H684JZ	Film 50V 0.68μF ±5%
C105, 106	MY-50VU222J	Film 50V 2200pF ±5%
C107, 108	MY-50VU102J	Film 50V 1000pF ±5%
C109, 110	LL-25TW100M	Low-leak Elect. 25V 10μF ±20%
C111~114	HE70SJYF103Z	Ceramic 50V 0.01pF +80~ -20%
C115, 116	NS-10TW101M	Elect. 10V 100μF ±20%
C201, 202	HE60SJS181K	Ceramic 50V 180pF ±10%
C203, 204	LL-25TW100M	Low-leak Elect. 25V 10μF ±20%
C205, 206	HE90SJS1471K	Ceramic 50V 470pF ±10%
C207, 208	NS-10TW221M	Elect. 10V 220μF ±20%
C209, 210	ECQV1H104JZ	Film 50V 0.1μF ±5%
C211, 212	HE90SJS1391K	Ceramic 50V 390pF ±10%
C213, 214	NS-16TW101M	Elect. 16V 100μF ±20%
C215~218	NS-50TW2R2M	Elect. 50V 2.2μF ±20%
C219~222	NS-25TW470M	Elect. 25V 47μF ±20%
C223, 224	NS-50TW1R0M	Elect. 50V 1μF ±20%
C301~304	NS100TW4R7M	Elect. 100V 4.7μF ±20%
C305, 306	HM60SJS1H220K	Ceramic 500V 22pF ±10%
C307~310	HE40SJYD102M	Ceramic 50V 1000pF ±20%
C311, 312	NS-16TW100M	Elect. 16V 10μF ±20%
C313, 314	NS-50TWR10M	Elect. 50V 0.1μF ±20%
C315~318	HE80SJS131K	Ceramic 50V 330pF ±10%
C319~322	HE60SJS151K	Ceramic 50V 150pF ±10%
C323, 324	MY100VS473K	Film 100V 0.047μF ±10%
C325~328	MY100VS682K	Film 100V 6800pF ±10%
C329, 330	MY-50VU104J	Film 50V 0.1μF ±5%
C401, 402	NS-10TW470M	Elect. 10V 47μF ±20%
C403	NS-10TW220M	Elect. 10V 22μF ±20%
C404	NS-50TWR47M	Elect. 50V 0.47μF ±20%
C405	MY-50VU102K	Film 50V 1000pF ±10%
C406, 407	ECQV1H104JZ	Film 50V 0.1μF ±5%
C408, 409	NS-50TW331M	Elect. 50V 330μF ±20%
C410	NS100TWR47M	Elect. 100V 0.47μF ±20%
C411, 412	BC0A103M180EE3	Elect. 120V 10000μF ±20%
C413, 414	BC80103MC80EE4	Elect. 80V 10000μF ±20%
C415, 416	MY100VS104K	Film 100V 0.1μF ±10%
C417	HM15SJYD103M	Ceramic 500V 0.01μF ±20%
C501	ECQU1A103MH	Film 125V 0.01μF ±20% [A]
C501	ECQU2A103MF	Film 250V 0.01μF ±20% [B, B <sub>1</sub> , C]
C502	ECQU2A103MF	Film 250V 0.01μF ±20% [B, B <sub>1</sub> , C]

### Resistors

Ref. No.	Part No.	Description
R101, 102	KA25ST224J	Carbon 1/4W 220KΩ ±5%
R103, 104	KA25ST103J	Carbon 1/4W 10KΩ ±5%
R105, 106	KA25ST393J	Carbon 1/4W 39KΩ ±5%
R107~110	KA25ST222J	Carbon 1/4W 2.2KΩ ±5%
R111, 112	KA25ST104J	Carbon 1/4W 100KΩ ±5%
R113	KA25ST101J	Carbon 1/4W 100Ω ±5%
R114, 115	KA25ST104J	Carbon 1/4W 100KΩ ±5%
R116	KA25ST152J	Carbon 1/4W 1.5KΩ ±5%
R117	KA25ST472J	Carbon 1/4W 4.7KΩ ±5%
R118	KA25ST563J	Carbon 1/4W 56KΩ ±5%
R119	KA25ST332J	Carbon 1/4W 3.3KΩ ±5%
R120	KA25ST392J	Carbon 1/4W 3.9KΩ ±5%
R121~124	KA25ST102J	Carbon 1/4W 1KΩ ±5%
R201, 202	KA25ST104J	Carbon 1/4W 100KΩ ±5%
R203, 204	KA25ST223J	Carbon 1/4W 22KΩ ±5%

### Resistors

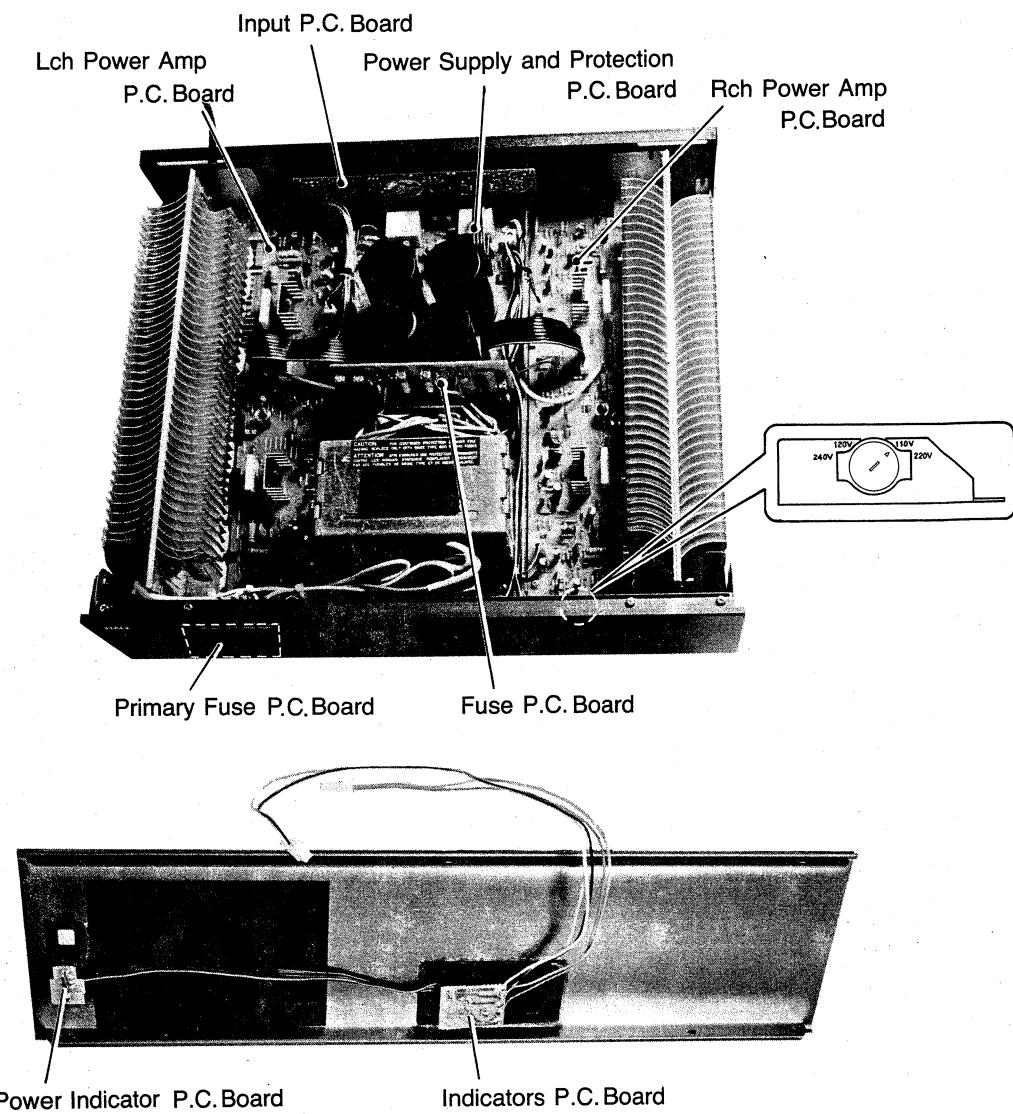
Ref. No.	Part No.	Description
R205, 206	KA25ST471J	Carbon 1/4W 470Ω ±5%
R207~210	KA25ST561J	Carbon 1/4W 560Ω ±5%
R211, 212	KA25ST182J	Carbon 1/4W 1.8KΩ ±5%
R213, 214	KA25ST102J	Carbon 1/4W 1KΩ ±5%
R215, 216	KA25ST911J	Carbon 1/4W 910Ω ±5%
R217, 218	KA25ST102J	Carbon 1/4W 1KΩ ±5%
R219, 220	KA25ST331J	Carbon 1/4W 330Ω ±5%
R221, 222	KA25ST333J	Carbon 1/4W 33KΩ ±5%
R223, 224	KA25ST103J	Carbon 1/4W 10KΩ ±5%
R225, 226	SA-1WT562J-LP	Metal Oxide 1W 5.6KΩ ±5%
R227, 228	KA25ST102J	Carbon 1/4W 1KΩ ±5%
R229~232	KA25ST221J	Carbon 1/4W 220Ω ±5%
R233, 234	KA25ST682J	Carbon 1/4W 6.8KΩ ±5%
R235~238	KA25ST472J	Carbon 1/4W 4.7KΩ ±5%
R237, 240	KA25ST471J	Carbon 1/4W 470Ω ±5%
R241, 242	FR50ST103J-LP	Flame Proof 1/2W 10KΩ ±5%
R243, 244	KA25ST821J	Carbon 1/4W 820Ω ±5%
R245, 246	KA25ST102J	Carbon 1/4W 1KΩ ±5%
R247, 248	KA25ST104J	Carbon 1/4W 100KΩ ±5%
R249, 250	KA25ST471J	Carbon 1/4W 470Ω ±5%
R252, 252	FR50ST103J-LP	Flame Proof 1/2W 10KΩ ±5%
R253, 254	KA25ST821J	Carbon 1/4W 820Ω ±5%
R255, 256	KA25ST102J	Carbon 1/4W 1KΩ ±5%
R257~260	KA25ST104J	Carbon 1/4W 100KΩ ±5%
R261, 262	KA25ST223J	Carbon 1/4W 22KΩ ±5%
R263, 264	FR25ST330J-LP	Flame Proof 1/4W 33Ω ±5%
R271, 272	KA25ST272J	Carbon 1/4W 2.7KΩ ±5%
R301, 302	FR25ST331J-LP	Flame Proof 1/4W 330Ω ±5%
R303, 304	FR25ST470J-LP	Flame Proof 1/4W 47Ω ±5%
R305, 306	FR25ST151J-LP	Flame Proof 1/4W 150Ω ±5%
R307~310	KA25ST272J	Carbon 1/4W 2.7KΩ ±5%
R311, 312	KA25ST333J	Carbon 1/4W 33KΩ ±5%
R313, 314	KA25ST103J	Carbon 1/4W 10KΩ ±5%
R315, 316	KA25ST333J	Carbon 1/4W 33KΩ ±5%
R317, 318	KA25ST184J	Carbon 1/4W 180KΩ ±5%
R319, 320	KA25ST333J	Carbon 1/4W 33KΩ ±5%
R321, 322	KA25ST561J	Carbon 1/4W 560Ω ±5%
R323, 324	KA25ST333J	Carbon 1/4W 33KΩ ±5%
R325~328	KA25ST102J	Carbon 1/4W 1KΩ ±5%
R329, 330	FR25ST680J-LP	Flame Proof 1/4W 68Ω ±5%
R331, 332	FR25ST471J-LP	Flame Proof 1/4W 470Ω ±5%
R333, 334	FR25ST680J-LP	Flame Proof 1/4W 68Ω ±5%
R335~338	SA-2WT123J-LP	Metal Oxide 2W 12KΩ ±5%
R339, 340	SA-2WT682J-LP	Metal Oxide 2W 6.8KΩ ±5%
R341, 342	KA25ST153J	Carbon 1/4W 15KΩ ±5%
R343, 344	SA-2WT682J-LP	Metal Oxide 2W 6.8KΩ ±5%
R345, 346	KA25ST153J	Carbon 1/4W 15KΩ ±5%
R347, 348	KA25ST123J	Carbon 1/4W 12KΩ ±5%
R349, 350	KA25ST272J	Carbon 1/4W 2.7KΩ ±5%
R351, 352	KA25ST102J	Carbon 1/4W 1KΩ ±5%
R353, 354	FR25ST471J-LP	Flame Proof 1/4W 470Ω ±5%
R355, 356	FR25ST101J-LP	Flame Proof 1/4W 100Ω ±5%
R357, 358	KA25ST102J	Carbon 1/4W 1KΩ ±5%
R359, 360	FR25ST471J-LP	Flame Proof 1/4W 470Ω ±5%
R361, 362	FR25ST101J-LP	Flame Proof 1/4W 100Ω ±5%
R363, 364	MPC722R22KX2LF	Flame Proof 1/2W 330Ω ±5%
R365~368	SA-2WT123J-LP	Cement 5W 0.22Ω (x2)
R369~372	SA-2WT4R7J-LP	Metal Oxide 2W 4.7Ω ±5%
R373~376	FR25ST471J-LP	Flame Proof 1/4W 470Ω ±5%
R377, 378	FR25ST470J-LP	Flame Proof 1/4W 47Ω ±5%
R379, 380	FR25ST470J	Flame Proof 1/4W 47Ω ±5%
R401~404	KA25ST563J	Carbon 1/4W 56KΩ ±5%
R405	KA25ST224J	Carbon 1/4W 220KΩ ±5%
R406	KA25ST473J	Carbon 1/4W 47KΩ ±5%
R407	KA25ST563J	Carbon 1/4W 56KΩ ±5%
R408	KA25ST333J	Carbon 1/4W 33KΩ ±5%
R409~412	KA25ST223J	Carbon 1/4W 22KΩ ±5%
R413	SA-2WT471J-LP	Metal Oxide 2W 470Ω ±5%
R414	KA25ST823J	Carbon 1/4W 82KΩ ±5%
R415	KA25ST473J	Carbon 1/4W 47KΩ ±5%

### Resistors

Ref. No.	Part No.	Description
R416	SA-1WT392J-LP	Metal Oxide 1W 3.9KΩ ±5%
R417	KA50XT272J	Carbon 1/2W 2.7KΩ ±5%
R418	KA25ST154J	Carbon 1/4W 150KΩ ±5%
R419	KA25ST223J	Carbon 1/4W 22KΩ ±5%
R420	KA50XT272J	Carbon 1/2W 2.7KΩ ±5%
R421, 422	KA25ST332J	Carbon 1/2W 3.3KΩ ±5%
SVR201, 202	SVR-08T3B103	Semi-variable 10KΩ (B)
SVR301, 302	SVR-08T3B102	Semi-variable



## P.C.BOARDS AND Vol. Sel. SW LOCATION



## VOLTAGE CONVERSION

The units for U.K., Australia, and Europe are incorporated with voltage selectors. When changing the voltage, set up the mark "►" of the selector to an appropriate indication voltage as shown in the figure.

